Draft HEA Habitat Values for ESA Consultation			
Habitat	**Habitat Characteristics**	**Yrs Until Full Function**	**Salmonid Value**
Riparian	naturally vegetated forest, <400 ft from ACM[1]	40 [2]	0.5
	and in the historic floodplain	40 [2]	0.65
	naturally vegetated, grass/shrub	5	0.2
	and associated with historic floodplain	5	0.35
	invasive species[3]	3	0.1
	vegetated riprap	NA	0.05
	unvegetated/paved/buildings/riprap	NA	0
Active channel margin	sloped (<5:1 or 11°), unarmored and vegetated[4]	3	1
	sloped (>5:1 or 11°), unarmored and vegetated[4]	3	0.8
	sloped (<5:1), unarmored and unvegetated	3	0.8
	sloped (>5:1), unarmored and unvegetated	1	0.1
	sloped (<5:1), bio-engineered	3	0.2
	sloped (>5:1), bio-engineered	3	0.2
	riprapped	NA	0
	sheetpile	NA	0
	pilings	NA	1/2 value of margin type
	covered structures over channel margins[5]	NA	0.1
Main channel	shallow water, gravel and finer substrates	1	1 (0.9)
	shallow water, natural rock outcrop[6]	NA	1 (0.9)
	shallow water with riprap or concrete	NA	0.1 (0.1)
	shallow water with covering structures[5]	NA	0.1 (0.1)
	shallow water with pilings	NA	1/2 value of channel type
	deep water with natural substrates	1	0.1
	deep water with artificial substrates	NA	0.05
Off channel	"cold" water tributary	1	1
	"warm" water tributary	1	0.9
	side channel	1	1
	alcove or slough with tributary	1	1 [7]
	alcove or slough without tributary	1	0.8
	embayment (cove) with tributary	1	1 [7]
	embayment (cove) without tributary	1	0.8 [8]

[1] ACM = active channel margin

[2] achieves 80% of full function within 10 years; this time is adequate because of flood protection

[3] eg. Himalayan blackberry

[4] native species, value is 1/2 the value listed if vegetated with invasive species

[5] eg. docks

[6] cannot be created

[7] value is 0.9 for salmonid adults if "warm" water tributary

[8] value is around 0.6 further upstream

Notes:

-The listed habitat values are for Portland Harbor. Areas outside Portland Harbor may have different values for some species, or no value for some species. In such cases, multiple projects may be needed to fully mitigate for the effects of an action on all species affected.

-Debits and credits for a given project need to come from the same habitat category (eg. main channel), unless credits come from creating off channel habitat because it is a primary limiting factor for salmonids.

-No credit will be given for creating any new habitat with riprap, artificial substrates, pilings or covering structures.

- Credit for simply removing pilings is limited to 0.1 and for removing covering structures is limited to 0.5.

-For ESA purposes, shallow water habitat is defined as <20 feet of water depth as measured at the ordinary low water level. The value listed in the table is for shallow water habitat 0-10 feet in depth and the value in parentheses next to it is for shallow water habitat 10-20 feet in depth.

- Bio-engineering is defined as the use of living and nonliving plant materials in combination with natural and synthetic support materials for slope stabilization, erosion reduction, and vegetative establishment. To receive credit for bio-engineered ACM, the treatments may include inert components and grading but they must fundamentally rely on riparian plants to provide long term strength to the bank. Inert material may be used but generally only to temporarily reduce hydraulic pressures so that the planted live material can become established. NMFS must appove any proposal for bio-engineered ACM for credit to be given.